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SUMMARY

The 1996 Act instructs the Commission to conduct various proceedings aimed at implementing the "pro-competitive, de-regulatory national policy framework" created by Congress. In addressing this mandate, the Commission must seek to regulate only insofar as is absolutely necessary, and then to design regulations that will help achieve a competitive market outcome. This means the Commission must use its regulatory tools – including cost models in limited circumstances – to craft a minimalist set of rules that encourage efficient market entry while avoiding unintended harm to customers and incumbent service providers. Unfortunately, the Commission's proposed use of cost models will have exactly the opposite effect.

Comments clearly show that the Commission's efforts with regard to the use of cost models are misdirected. First, the Commission does not have the authority under the 1996 Act to prescribe prices for unbundled network elements, so any proposed use of a model for that purpose is prohibited. Second, the estimates of cost produced by the models under examination cannot be used to directly establish prices for universal service or access charges for the simple reason that such use would set prices that are different from those a market would set; this would prevent development of the competitive market the 1996 Act directs the Commission to foster.

The Commission currently proposes to use the cost estimate produced by a proxy model that uses an unrealistic set of assumptions (a static world in which no growth occurs and no uncertainty exists) to set a mandatory price level for services comprising billions of dollars of revenues for many of the nation's largest telecommunications firms. Such action would be a public policy disaster of

unprecedented proportion because the primary assumption underlying the Commission's proposal is wrong.

Sound economic principles and real-world experience clearly demonstrate that the prevailing price in competitive markets does not become equal to the lowest possible cost of an entrant at the instant the new firm joins the market. Rather, an entrant with a cost advantage sets its price level just below the average price of incumbents so as to reap the profits of innovation and risk-taking. The average market price only falls to reflect the new lower-cost innovation over time as the innovation becomes fully adopted by all firms.

In fact, the Commission has no basis for concluding that an efficient entrant would have lower costs than incumbent carriers do today, if both are correctly measured. One firm could be more efficient than another in a given market, but not simply by virtue of being an entrant. The currently available proxy cost models do not correctly represent what is "efficient" -- in fact, they often adopt network designs that are quite inefficient. The models simply misrepresent the costs faced by all firms -- both incumbents and entrants.

The Commission must avoid placing the financial health of many of the largest of the nation's telecommunications firms at grave risk -- an action that would violate Congress's charter of overseeing development of a vibrantly competitive market and likely violate basic Constitutional principles. The Commission must base its policies upon real-world, sound economic principles, rather than the results-oriented but wrong "junk economics" set forth by the firms that stand to benefit most directly.

The Commission must change focus to concentrate on how proxy cost models can be employed effectively within their limited range of usefulness to promote market entry and genuine competition within the context of universal service. But, even before a cost model can be used for that narrow purpose, the Commission must ensure that the cost model it adopts is based upon real-world network design and inputs representative of those normally found in the industry. Further, while the currently available static models will never accurately represent the actual cost-minimization problem faced by real carriers, they can be adjusted to more closely approximate reality.

Specifically, a cost model must: (1) use verifiable input prices; (2) employ fill factors representative of industry norms; (3) build capacity in discrete lumps; (4) have design algorithms that result in a sufficient amount of facilities to actually provide service to all customers; (5) share support structure only in proportion to real-world experience; (6) use a market-determined cost for debt and equity and in the same proportions as real competitive firms will employ; (7) use depreciation schedules based upon projected economic lives; (8) include realistic amounts of joint and common costs; and (9) include expense levels based upon proven statistical forecasting techniques.

Because of the numerous well-documented methodological flaws, Hatfield 3 is beyond repair and cannot be adopted. The Benchmark Cost Proxy Model (BCPM) is far more flexible and its proponents have demonstrated their willingness to verify inputs, computational algorithms, and cost estimates, and to accept suggestions for improvements. Therefore, the Commission should request that the BCPM be modified to improve the accuracy of its cost estimates.

Specifically: the BCPM should be revised to: (i) use accurate line counts at the wire center level; (ii) assume facility utilization that is consistent with optimization over time by a real firm; (iii) use a reasonable assumption of market share; (iv) use computational algorithms that reflect optimal capacity placement over time; (v) estimate forward-looking operating expenses by applying generally accepted statistical forecasting methods; and (vi) ensure that retail "customer care" expenses estimated by the model are consistent with avoided cost estimates established by state regulatory agencies. BCPM can then be further evaluated to determine whether it is acceptable for use in the limited context GTE proposes.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
Staff's Analysis of the Use of	)	CCB/CPD 97-2
Computer Models for Estimating	)	
Forward-Looking Economic Costs	)	

GTE's REPLY COMMENTS

GTE Service Corporation ("GTE"), on behalf of its affiliated domestic telephone operating companies, submits the following Reply Comments regarding: (i) the FCC Staff paper entitled "The Use of Computer Models for Estimating Forward-Looking Economic Costs" ("*Staff Analysis*");[1] (ii) recently released versions of two proxy cost models under consideration by the Commission;[2] and (iii) comments filed in relation thereto,[3] as follows.

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1 Public Notice, Commission Staff Releases Analysis of Forward-Looking Economic Cost Proxy Models ("*Staff Analysis Notice*"), DA 97-56 (released January 9, 1997).

2 The two models are the: (1) Benchmark Cost Proxy Model ("BCPM") that was developed based on the Benchmark Cost Model Version 2 ("BCM2") and the Cost Proxy Model ("CPM"); and (2) the Hatfield Associated Model Version 3.0 ("Hatfield 3").

3 Public Notice, Extension of Time Granted for Parties to Submit Comments in Response to Commission Staff's Analysis of Cost Proxy Models ("*Extension Notice*"), DA 97-239 (released January 31, 1997). *See also*, Public Notice, Further Extension of Time Granted for Parties to Submit Comments in Response to Commission Staff's Analysis of Cost Proxy Models ("*Further Extension Notice*"), DA 97-333 (released February 12, 1997).

BACKGROUND

In various proceedings undertaken to implement the Telecommunications Act of 1996 ("1996 Act"), *i.e.*, local competition,[4] universal service,[5] and access charge reform,[6] the Commission has discussed the possible use of cost models as a regulatory tool. Specifically, the Commission has proposed to use cost models to estimate the forward-looking economic costs of providing telecommunications services, and to set the price for various services and unbundled network elements ("UNEs") equal to that cost.[7] The instant proceeding was begun to examine issues relating to the design and

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[4] Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, CC Docket No. 96-98 ("*D.96-98*"), First Report and Order, 11 FCC Rcd 15499 (1996) (*Local Competition Order*), Order on Reconsideration, CC Docket No. 96-98, 11 FCC Rcd 13042 (1996) *petition for review pending and partial stay granted, sub nom.* Iowa Utilities Board et. al v. FCC, No. 96-3321 and consolidated cases (8th Cir., October 15, 1996), *partial stay lifted in part*, Iowa Utilities Board *et. al* v. FCC, No. 96-3321 and consolidated cases (8th Cir. November 1, 1996).

[5] Federal-State Joint Board on Universal Service, Recommended Decision, CC Docket No. 96-45 ("*D.96-45*"), FCC 96-93 (released November 8, 1996) ("*D.96-45 Recommended Decision*").

[6] Access Charge Reform, Notice of Proposed Rulemaking ("*Access Reform NPRM*"), CC Docket No. 96-262 ("*D.96-262*"), FCC 96-488 (released December 24, 1996).

[7] The Commission has no authority to establish the price of UNEs; that is expressly left to the state regulatory agencies by 47 U.S.C. § 252(d)(1). That section also makes clear that prices for unbundled network elements must be based on the actual costs of the incumbent Local Exchange Carrier ("ILEC"), and not on "proxy cost" estimates from models based on unrealistic hypothetical networks.

use of forward-looking cost models,[8] and specifically seeks public input on the numerous items discussed in the *Staff Analysis*, with a view to incorporate the record gathered thereto into the official record of proceedings undertaken as part of implementation of the 1996 Act.[9]

INTRODUCTION

Comments filed on February 18, 1997, are predictable. Hatfield 3 model proponents and firms that seek to pay as little as possible for services provided by ILECs assert that the Hatfield 3 model is perfectly suited for the intended purpose, and that the Commission's assumption underlying the proposed use of models is correct.

ILECs that must actually provide services urge the Commission to abandon its fundamentally flawed economic premises and recognize that real-world markets function in a very different manner. Further, comments clearly demonstrate that the Hatfield 3 model is so seriously and fundamentally deficient as to be useless for any purpose.

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[8] The fundamental principle applicable in every proceeding -- universal service, access reform, and local competition -- is that GTE is entitled to recover all its costs, including its stranded investment and all "subsidy costs" GTE incurs under regulation. Implementation of prices that do not reflect GTE's actual costs would guarantee an unconstitutional taking. A regulated entity such as GTE may not be forced to provide services at below-cost without just compensation. *See Brooks-Scanlon Co. v. Railway Comm'n of Louisiana*, 251 U.S. 396, 399 (1920). This rule applies even if the regulated entity is forced to provide services at prices below its' cost only temporarily. In short, if this Commission implements any pricing regime that sets prices below GTE's costs, the Commission will be responsible for an unconstitutional taking.

[9] *Staff Analysis Notice* at 1.

In these Reply Comments, GTE underscores the need for action based upon sound economic principles. Further, GTE summarizes the changes that must be incorporated into any model before it can be seriously considered for even the limited use proposed by GTE, *i.e.*, to generate information about relative cost relationships across geographic areas for use in determining explicit universal service support levels.[10]

In Exhibit A, GTE also provides the Staff with a revised paper prepared by INDETEC International describing the results of further review of the Hatfield 3 model reflecting additional information that has come to light in the limited period since comments were filed on February 18, 1997.

DISCUSSION

I. USE OF COST MODELS IN THE MANNER PROPOSED WOULD FRUSTRATE DEVELOPMENT OF A COMPETITIVE MARKET.

The 1996 Act instructs the Commission to conduct various proceedings aimed at implementing the "pro-competitive, de-regulatory national policy framework" created by Congress.[11] To accomplish this mandate, the Commission must seek to regulate only insofar as is absolutely necessary, and then to design regulations that will help achieve a competitive market outcome. This means the Commission must use its regulatory tools -- including cost models in limited circumstances -- to craft a minimalist set of rules

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[10] Only the *D.96-45 Recommended Decision* has actually adopted the use of a proxy cost model for the purpose of calculating the amount of universal service support. Because that proceeding is subject to a statutory deadline of May 8, 1997, GTE will discuss the use of cost models primarily in that context.

[11] Senate Conference Report No. 104-230, 104th Congress, 2nd Session 1 (1996). *See also, e.g.*, 47 U.S.C § 251(d)(1).

that serve to encourage efficient market entry while avoiding unintended harm to incumbents. Unfortunately, the Commission's proposed use of cost models will have exactly the opposite effect.

Comments clearly show that the Commission's proposed use of cost models in setting the price for universal service and access service is misdirected. GTE agrees with USTA's (at 11) succinct statement that "[t]he fundamental conceptual problem with the use of cost proxy models for regulatory pricing purposes is that the detailed governmental oversight entailed in such modeling is antithetical to reliance on competition as the best means of maximizing efficiency and consumer welfare." The estimates of cost produced by the models under examination cannot be used to directly

establish prices for the simple reason that such use would prevent development of the competitive market the 1996 Act directs the Commission to foster.[12]

A. The Commission's Proposed Use Of Cost Models Is Just Wrong.

The Commission has proposed to equate the forward-looking cost of a firm entering a telecommunications market to the price that would instantaneously result in that market. GTE described (at 8-10 and 19-22) how this proposal is fundamentally flawed because the average price in a competitive market does not immediately equal the cost structure of a new firm possessing a cost advantage that enters that market. Rather,

> [i]n an actual competitive market (not hypothetical or theoretical), competitors who achieve a cost advantage over the others will price higher than forward-looking costs to realize higher profits. New investment is made to achieve a competitive advantage, which in turn permits the competitor to achieve a return on the investment in excess of

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[12] It is interesting to compare the Commission's proposed use of engineering simulation models in the current context with the position taken by the United States in the antitrust suit that led to the AT&T divestiture agreement. In that case, the government accused AT&T of pricing "without regard to cost" because it provided regulators with cost information derived using "bottom up" engineering simulation models. Noll and Owen summarize the government's objection to this approach: "The estimates were based on hypothetical configurations of components of the long-distance network, with average prices of inputs, rather than with the actual design of real components of the network and the prices actually paid." As GTE explained at 20-23, such models do have their proper uses in developing information on relative price relationships and price floors. It is an inexplicable about-face, however, that the Commission should now propose to set the average compensation for the largest single line of business of the ILECs based solely on a method the Justice Department had previously found to yield prices which are too low. *See* "The Anticompetitive Uses of Regulation: *United States v. AT&T*," Roger G. Noll and Bruce M. Owen, as published in The Antitrust Revolution, John E. Kwoka, Jr. and Lawrence J. White, Editors (Scott, Foresman and Company, Boston, 1989). Further, the progenitor of the Bell System theory -- AT&T -- continues to be the principal proponent of such pricing without regard to cost.

> economic cost. For this reason, forward-looking costs should not be used as a price ceiling or as the only service price. A competitive market would not create such a result.[13]

"Simply stated, a cost model cannot and must not be used to establish prices. Assuming price is equal to incremental cost, the firm would either exit the market or risk financial disaster by continuously operating at a loss."[14] "As Dr. Kahn points out, competition is a process and, accordingly, price reduction that may accompany technological advances occur as part of that process. Price reductions are not instantaneous, independent events in the real world."[15] Thus it is clear that the Commission's proposed use of cost model estimates is wrong.

As GTE (at ¶ 8-10) pointed out in its comments, the average market price at any given time will reflect the actual costs of firms in that market. Today, those firms are the ILECs.[16] Therefore, to estimate the market price, the Commission must use information that reflects the actual cost of the ILECs.

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[13] U S WEST at 9-10.

[14] SWBT at 3-4.

[15] BellSouth at 4.

[16] GTE observed that the average price will reflect the average of actual costs of firms in the market. This statement is actually conservative. If the firms in the market are heterogeneous with respect to cost, then the price will be set by the highest-cost firm or unit of capacity that still supplies at the market equilibrium -- just as, on the demand side, the price is set by the customer who has the lowest willingness to pay, but still buys. The statement in GTE's comments is still an accurate characterization of the market for basic local service, however, since most of the supply is provided today by one provider in each market -- the ILEC -- and that firm does not charge different prices to local customers based on differences in the equipment that serves them.

The currently available cost models, then, do not estimate a correct concept of forward-looking cost. In addition, there are other factors which lead to errors in the models. Any model is a simplification of reality, and will predict with some error. However, engineering simulation models of this type are generally not suited for estimating the overall average level of cost for the entire firm, or for a very large increment (such as the ILEC's entire output of basic local service).[17] As GTE (at ¶ 20-22) explained in its comments, this means that the proxy models are inherently unreliable as estimators of average price levels. Network simulation also provides no useful information about expenses, particularly those which are not directly attributable, but must nonetheless be recovered in the market price. The models do not optimize anything, and are therefore completely dependent on the user to provide the model with rules of thumb and input values which accurately reflect the result of some external optimization.

B. Cost Models Do Not Accurately Estimate The Cost Of An Entrant.

None of the models even accurately estimate the cost of the so-called "forward-looking efficient entrant." This is true because the models do not dynamically optimize a network as all firms -- incumbents and entrants -- must in a real market.

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[17] "The bottom-up approach is most suitable where the hypothetical incremental changes being considered are relatively small and involve clearly delineated alterations to the *existing* network. The approach becomes more questionable as the scope of contemplated incremental changes expands and becomes more radical (and less 'incremental' in the common-usage meaning of the term)." *See* Strategic Policy Research ("SPR") at 7.

The models use simple rules of thumb and construct a hypothetical network for a static, 100% of demand level of service in an environment free from uncertainty.[18] "The model[s] ignore[ ] the fact that a prudent investment strategy requires that the network be deployed in stages as demand materializes."[19] The models reliance on an entirely new network also ignores the fact that regardless of the industry, incumbents minimize total cost by using a mixture of older and new technologies -- and entrants become incumbents on "day two" of the life of their firm.[20] "It is simply unrealistic to assume, as a hypothetical model does, that firms discard valuable and useful assets every time a more efficient technology becomes available."[21] Finally, the assumption that the models produce a more "efficient" network design is "based on the theory that LEC engineers deliberately designed a network that is less efficient than a computer programmer could

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[18] Adoption of the WorldCom at 8 proposal that "a proxy cost model should develop cost estimates that reflect the minimum costs of a collection of least-cost networks rather than the least cost point of a single network sized to meet the entire market demand" would lead to a model that could not be used for the purpose of calculating universal service support. The 1996 Act requires an eligible telecommunications carrier to offer the services that are supported by Federal universal service support mechanisms throughout the service area for which the designation of eligibility is received. 47 U.S.C. § 214(e). Thus, use of a model that does not allow a single provider to address all of a service area would understate the costs of a firm that ostensibly would hold itself out to provide service ubiquitously.

[19] Pacific Bell ("Pacific") at 11. GTE's Comments at 10-17 described this as the "stair-step" process to adding capacity.

[20] *See* GTE's Comments at 10-17 discussing airline and other industries' cost minimization strategies.

[21] BellSouth at 4.

design with nothing more than maps, census data, and locations of existing wire centers. This is pure hubris."[22]

The available models also contain a wide variety of specific errors in their structure, assumptions, and input data. As GTE and other parties amply demonstrated, the Hatfield 3 model in particular employs a host of flawed assumptions and faulty inputs that render it useless for reliably predicting even the costs of a so-called "efficient entrant" because the model is carefully designed to produce outputs that are "as low as possible."[23]

C. Cost Models Have Limited Usefulness.

While cost models cannot be used as the Commission proposes, they do have usefulness in a universal service plan. They can be used to demonstrate relative cost relationships. A cost model can demonstrate which geographic area is relatively high- or low-cost, for purposes of identifying which area should qualify for explicit universal

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[22] Bell Atlantic-NYNEX at 9.

[23] U S WEST at 3.

service support under 47 U.S.C § 254(e).[24] "The purpose of a cost proxy model should be to provide a starting point estimate of the costs that would prevail in a competitive environment, bounded by real-world competitive data (*e.g.*, prices willingly offered by incumbents and embedded costs)."[25] GTE proposes that the "starting point" provided by the model should be combined with actual cost data to determine the estimate of cost.

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[24] GTE has suggested this use on several occasions, as a way of establishing the level of support before implementation of a true market-based mechanism -- a competitive bidding process. However, if the Commission finds there is no cost model available before May 8, 1997, that meets its criteria for reliability, GTE suggests that the Commission can implement the Federal universal service plan without using a proxy cost model at all. This could be done by first determining the total actual cost the ILEC incurs today to provide basic local service within each study area. This amount should be adjusted to remove any deferred depreciation expense from prior periods, which should be recovered and amortized through a separate program. *See* GTE's *D.96-262* Comments at 39-44. The ILEC would then distribute the remaining total cost across the CBGs in the study area. The ILEC could choose any distribution, as long as the total cost in the study area remained the same. This approach would borrow from the Commission's price cap plan the concept of a price cap index subject to a constraint at the basket level. The support calculation would be based on the ILEC's actual cost placed in each CBG as a result of the distribution. If an ILEC places too much cost in any one CBG, it will create an incentive for firms to enter that area, and bid those costs away through the auction process proposed by GTE. Once the ILEC had chosen the distribution of cost, it would be frozen, and could not be modified later after competitive entry occurs.

[25] WorldCom at 37. GTE agrees with WorldCom that a market observation of the price is preferable to the use of a cost model; that is why GTE has proposed that support be determined through competitive bidding. However, WorldCom at 21-26 mistakenly suggests that the prices of unbundled elements determined through negotiations in the states represent prices "willingly offered" by the ILECs. These negotiations are taking place within the context of a framework established by the 1996 Act, which specifies the parameters of the negotiations, and the consequences that will ensue if an agreement is not reached. While this process is necessary for the implementation of the 1996 Act, it cannot be said to replicate a market process, nor can the prices arrived at be characterized as "willingly offered."

These uses of cost models are far different from that proposed by the Commission -- to set an absolute price level. Thus, the Commission must constrain the use of cost model estimates to these limited applications.

D. The Cost Models Under Consideration Cannot Be Used For Multiple Purposes.

The *Staff Analysis* (at ¶ 11) asks whether a single proxy model, or combination of models, can be used to provide cost estimates for access services, universal service support and UNE pricing. The MCI-AT&T Comments (at 1-2) state that the UNEs modeled by Hatfield 3 "are capable of providing carrier access and the services recommended by the Joint Board for universal service support."[26] This is a false claim.

The Hatfield 3 is carefully designed to produce the lowest possible output cost. Thus, the network design assumptions used by the modelers in this quest preclude the use of the output for all three purposes. For example, GTE (at 34-35) described how the use of an integrated DLC in providing local exchange service creates the need for additional costs when an unbundled loop is provided separately from local switching. The MCI-AT&T Comments (at 4) confirm that Hatfield 3 employs an integrated DLC for local exchange service because this design "is lower cost," and mention no upward adjustments to costs to account for UNEs.

U S WEST (at 7-8) provides another example -- a model solely designed to estimate the cost of a narrowband network would not capture the costs inherent in

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[26] Comments signed by MCI and AT&T representatives, *D.97-2*, at 1-2 (February 18, 1997) ("MCI-AT&T Comments").

UNEs of greater bandwidth capability.[27] Pacific (at 6-7) also discusses the inability of a cost model to capture traffic volume information needed to accurately estimate access service switching costs. The Texas PUC (at 3-4) confirms that these differences will likely prevent one model from being used for all of the Commission's three stated purposes, saying that "the regulatory objectives of these activities may be divergent enough to require different treatment."

U S WEST (at 8) confirms that the BCPM is currently not capable of providing cost estimates for all three purposes the Commission desires, but states that it "would be the only logical choice" for the modifications needed to perform those functions. Sprint (at 5-6) corroborates this statement, adding that "with the appropriate variation of inputs, the BCPM is indeed flexible enough to be used..." for multiple purposes."

II. THE INPUTS, ALGORITHMS, AND COST ESTIMATES PRODUCED BY ANY COST MODEL ADOPTED FOR USE BY THE COMMISSION MUST BE VERIFIED AGAINST ACTUAL EXPERIENCE, AND DIFFERENCES EXPLAINED.

The *Staff Analysis* (at ¶ 12) asked whether independent estimates of the costs of network elements can be used as a check on the validity of model estimates. GTE (at 35-36) agreed that such independent data must be used for validation, and stated that three types of verification activity should take place, *i.e.*, evaluation of: (1) the reasonableness of inputs and the appropriateness of computational algorithms, (2) comparison of the models; and (3) cost estimates compared to actual data.

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[27] *See also* Sprint at 5-6; Ameritech at 10.

A. Inputs Must Be Validated With Real-World Experience.

1. Competitive bids and both public and proprietary information should be used for validation purposes.

The *Staff Analysis* (at ¶ 12) specifically asked whether competitive bids for installing loops could serve as an indication of the reasonableness of model inputs. GTE encourages the Commission to gather such information from existing sources of recent actual bids to avoid the difficulties U S WEST (at 13) describes: firms are unlikely to submit serious bids unless there is real work to be awarded.

GTE (at 84-85) also recommended that switching cost inputs be gathered from industry sources, including competitive LECs, using confidential treatment if necessary. Other parties agree that data from a wide variety of sources should be gathered to verify switching, loop and other cost inputs.[28] Further, Sprint (at 9) -- a BCPM sponsor -- "strongly supports" the idea that proprietary information be used for switching costs, and suggests the Commission "provide an appropriate administrative remedy to require the production of this information."

The MCI-AT&T Comments (at 11) claim that "both the equipment and labor costs used in the Hatfield model for estimating the cost of loops are based on current information on costs of plant installations." Based upon GTE's experience with a subsidiary of one of the model sponsors, this claim is not credible. For over two years ending in 1995, GTE employed AT&T as a subcontractor for cable placement in California. When the contract expired, AT&T declined to bid to renew the contract. GTE has compared those prices to the new Hatfield 3 default inputs, and found the

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[28] *See, e.g.:* Sprint at 7; U S WEST at 15 and 26-28; Pacific at 12; Ameritech at 14.

Hatfield 3 inputs to be approximately 30%-40% less than the two-year old AT&T contract prices![29]

In its Comments, GTE also provided a switching function estimated using competitive bids for switches purchased by GTE in California.[30] These data show that the Hatfield 3 model captures only about 55% of the cost of GTE's switches.

2. Depreciation lives should be representative of a competitive environment.

There is consensus that depreciation lives should be representative of a future, competitive environment.[31] This is because "[i]n a competitive environment economic lives are likely to be shorter than in a regulated monopoly due to the competitive pressure to employ increasingly economically efficient new technologies more rapidly."[32]

As GTE (Attachment B, at 21) noted, it is hard to rationalize the more rapid depreciation typical of competitive environments with the lives used in Hatfield 3. In particular, there is no explanation for Hatfield 3's use of lives in modeling ILEC costs

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[29] *See* Exhibit C. The comparison performed by GTE "mapped" the Lucent contract prices into the Hatfield 3 density zones using "normal" soil conditions, *i.e.*, cable plowing prices were mapped into the less dense zones, whereas prices for boring under roads, backhoe trenching, pavement cutting and restoral, and so forth were mapped into the more dense zones.

[30] *See* GTE's Comments Attachment A, at 43-45. California has for several years required ILECs to seek competitive bids when they purchase new switches.

[31] *See* WorldCom at 30 ("MFS suggests that depreciation rates and capitalization factors used by competitive firms ought to be used in the cost proxy models"); Bell Atlantic-NYNEX at 11; SWBT at 25; BellSouth, Attachment 1, at 4; Texas PUC at 8.

[32] Aliant Communications Co. ("Aliant"), at 7.

that are 70% longer for switches, 135% longer for underground copper cable, and 79% longer for underground fiber cable than those proposed by a Hatfield 3 sponsor -- AT&T -- in 1994 for its own use.

AT&T-MCI Comments suggest (at 22) that the depreciation rates prescribed by regulators are forward-looking. This cannot be the case; since each ILEC currently has a considerable depreciation shortfall, the current rates have not adequately captured the decline in the value of ILEC plant in the past; they certainly will not be adequate in the future. AT&T-MCI Comment's suggestion is belied by the fact that these firms -- who are the likely entrants -- do not use those regulated depreciation rates themselves. Neither is the notion that current depreciation rates are adequate consistent with the results of the Hatfield model, which these parties sponsor. If a new network really can be built at half the current ILEC embedded cost, as Hatfield would suggest, then it cannot also be true that economic depreciation has been correctly accounted for in valuing the plant on the ILECs' books.[33]

In its recent decision establishing a universal service plan, the California PUC recognized the need to use forward-looking depreciation lives in a forward-looking cost model.[34] For use in the proxy model it adopted, the CPUC adopted lives which are significantly shorter than the lives currently prescribed by the same commission.

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[33] Note also that expected depreciation is a function of the discounted value of future cash flows. A sharp reduction in output prices -- which the Hatfield results would imply -- would cause a sharp reduction in the expected cash flow generated by plant in future periods.

[34] *Investigation on the Commission's Own Motion into Universal Service and to Comply with the Mandates of Assembly Bill 3643*, California Public Utility Commission Decision 96-10-066, at 142 (October 25, 1996).

AT&T-MCI Comments also suggest (at 22) that the depreciation lives used by ILECs for financial reporting are unreliable because the ILECs "may be writing off equipment from their books" in order to "build a broadband network to serve other types of customers, such as video." AT&T-MCI Comments do not suggest any reason why the one activity -- taking a voluntary writeoff for financial reporting purposes -- would help in any way to finance the other -- building a broadband network. In fact, the ILECs have no incentive to understate their depreciation lives when making financial writeoffs, since doing so will merely increase the amount of the writeoff -- it will not allow the ILEC to increase its revenue. The estimates used for this purpose are therefore, if anything, conservative.

Finally, GTE agrees with WorldCom (at 30) that the Commission should "solicit the depreciation lives and operating expenses/capital investment ratios used by competitive firms to determine the appropriate capitalization factors and depreciation rates for use in cost proxy models." To be most useful, this information should be obtained from independent sources whenever possible.

3. Cost of capital and debt/equity ratios should be representative of a competitive environment.

There is also consensus that the cost of capital should be representative of a future, competitive environment.[35] The BCPM uses an 11.4% rate, characterized by

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[35] *See* MCI-AT&T Comments at 20 ("forward-looking cost of capital should be based on market-determined costs for debt and equity as well as long-run debt-equity ratios chosen by firms."); Pacific at 13; SWBT at 26; BellSouth, Attachment 1, at 3; Sprint at 17-18; USTA at 21; Aliant at 7.

Sprint (at 18) as a "conservative" approach.[36] Hatfield 3 uses a cost of capital (10.01%) that is *lower* than an ILEC's cost of capital in a *regulated* environment (11.25%). The 11.25% rate of return was set by the Commission in 1990 to reflect then-current debt/equity ratios and corresponding costs of capital and debt representative of the pre-1996 Act environment.[37] Today's evolving competitive marketplace is entirely different than the environment in which the FCC's 11.25% rate of return was established. Specifically, ILECs be face increasing amounts of risk as they begin to compete in the post-1996 Act era, and this increased risk will result in higher costs of equity.[38] Hatfield 3 fails to account for this increased risk and resulting greater cost of equity.

MCI-AT&T (at 21) also claim that using a book value debt/equity ratio rather than a market value debt/equity ratio provides the best estimate of a firm's long-run capital structure. MCI-AT&T's claim overlooks one critical flaw in using a book value debt/equity ratio –it would produce an inaccurate and unreliable weighted cost of

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[36] The Hatfield 3 default cost of capital is based on a study commissioned by the model sponsors. *See* MCI-AT&T Comments at n.8. Although the MCI-AT&T Comments state the study was filed on February 12, 1997, the Commission's document information system has been out of service since February 11, 1997. Thus, GTE was unaware of the *ex parte* contact until copies of the MCI-AT&T Comments arrived in Irving (TX), and has yet to examine it. GTE will review this study and provide additional remarks at a future date. *See* Public Notice, Record Imaging processing System Is Down Due To Hardware Failure, February 12, 1997.

[37] *See* Represcribing the Authorized Rate of Return for Interstate Services of Local Exchange Carriers, 5 FCC Rcd 7507 (1990), recon., 6 FCC Rcd 7193 (1991), affd., *Illinois Bell Tel. Co. v. FCC*, 988 f.2d 1254 (D.C. Cir. 1993).

[38] *See* Aliant at 7: "Aliant also believes that the forward-looking market determined cost of equity should include an adjustment for the increased risk and uncertainty of newly competitive markets."

capital estimate. While the market value of a company's debt is more likely to be similar to the book value of that same debt, the market value of a company's equity is normally higher than that company's book value of common equity, sometimes by a factor of two-to-five or more times. This difference between the market value and book value of common equity results in substantially different debt/equity ratios. Unless the return on equity is adjusted significantly upward to compensate for the difference between the book value and market value of equity, utilizing a book value debt/equity ratio will significantly understate a company's weighted average cost of capital in today's market. Put simply, a book value debt/equity ratio does not produce a more accurate capital structure estimate.

B. Model Algorithms Must Be Evaluated By Comparing The Amount Of Facilities The Model Constructs With The Amount Needed To Provide Service.

The *Staff Analysis* (at ¶ 12) suggests that the network designed by a model for several CBGs could be compared to engineering plans used to build actual networks using today's technology. GTE (at 36) and other commenters welcome this Staff suggestion. Sprint (at 7-8) states that such a comparison should be between a model estimate and "independent engineering study of the cost of construction of new facilities for a sample of CBGs based on the same basic deployment." U S WEST (at 12) "welcomes any attempts at independent verification...."

In contrast, the MCI-AT&T Comments (at 11) speak only of a comparison of current actual networks against one designed by an independent engineering firm -- and studiously avoids volunteering a comparison of Hatfield 3 output to a new network designed from scratch by an independent engineer. This reticence is not surprising